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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/051,792 | 01/16/2002 | Paul L. Chan | 010335 | 1486 |

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Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
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EXAMINER

PEREZ, ANGELICA

ART UNIT PAPER NUMBER

2684

DATE MAILED: 06/15/2004

[Handwritten number 4]

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/051,792

Applicant(s)

CHAN ET AL.

Examiner

Angelica M. Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 and 30-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller (Miller, Gee D.; US Patent No.: 4,353,037).

Regarding claim 1, Miller teaches of a method (column 1 and 2, lines 63-67 and 1-18; where a description of the method is presented) comprising: evaluating a load mismatch criterion relative to a wireless transmitter (column 1, lines 50-55; where the criterion is set according to the “reflected power” and the “forward power”); and configuring a power amplifier associated with the wireless transmitter as a function of the load mismatch criterion (column 1, lines 50-54).

Regarding claim 2, 6 and 35, Miller teaches all the limitations of claims 1, 5 and 34, respectively. Miller further teaches of detecting a transmitted power signal and a reflected power signal (column 1, lines 63-66; e.g., “senses” corresponding to “detecting”); and calculating the load mismatch criterion as a function of the transmitted and reflected power signals (column 1, lines 55-59; where the “ratio” provides the “load mismatch”).

Regarding claims 3, 7 and 36, Miller teaches all the limitations of claim 2, 6 and 35, respectively. Miller further teaches of separating a power signal into the

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transmitted power signal and the reflected power signal (column 2, lines 1-3; e.g., "generate" a "forward power signal" and a "reflected power signal").

Regarding claim 4, Miller teaches all the limitations of claim 1. Miller further teaches where configuring the power amplifier comprises configuring a gain of the power amplifier (column 3, lines 12-18; where an amplified voltage represents a gain).

Regarding claim 5, Miller teaches of a method (column 1 and 2, lines 63-67 and 1-18; where a description of the method is presented) comprising: receiving at least one of a transmitted power signal level and a reflected power signal level from a power amplifier associated with a wireless transmitter (column 2, lines 1-3); and configuring a gain of the power amplifier as a function of the transmitted and reflected power signal levels (column 2, lines 12-18; where the gain is configured by making the comparison between the signals).

Regarding claim 30, Miller teaches of an apparatus (figure 1) comprising: means for evaluating a load mismatch criterion relative to a wireless transmitter (column 1, lines 50-55; where the criterion is set according to the "reflected power" and the "forward power"); and means for configuring a power amplifier associated with the wireless transmitter as a function of the load mismatch criterion (column 1, lines 50-54).

Regarding claim 31, Miller teaches all the limitations of claim 30. Miller further teaches of means for detecting a transmitted power signal emitted by an antenna associated with the wireless transmitter and a reflected power signal reflected by the antenna toward the power amplifier (figure 1, item 11) and

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means for calculating the load mismatch criterion as a function of the transmitted and reflected power signals (column 2, lines 6 and 12; e.g., "comparators").

Regarding claim 32. Miller teaches all the limitations of claim 31. Miller further teaches of means for separating a power signal into the transmitted power signal and the reflected power signal (figure 1, item 11; e.g., "coupler").

Regarding claim 33. Miller teaches all the limitations of claim 30. Miller further teaches of means for configuring a gain of the power amplifier (figure 1, item 11, "comparator").

Regarding claim 34, Miller teaches of an apparatus (figure 1) comprising: means for receiving at least one of a transmitted power signal level and a reflected power signal level from a power amplifier associated with a wireless transmitter (column 1, lines 63-66); and means for configuring a gain of the power amplifier as a function of the transmitted and reflected power signal levels (column 1, lines 50-54).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Forrester (Forrester, Tim; US Patent No.: 6,710,651B2).

Regarding claim 8, Miller teaches evaluating a load mismatch criterion relative to a wireless transmitter (column 1, lines 50-55; where the criterion is set according to the “reflected power” and the “forward power”); and configuring a power amplifier associated with the wireless transmitter as a function of the load mismatch criterion (column 1, lines 50-54).

Miller does not teach of a processor readable medium containing processor executable instructions for the application of the method described above.

In related art concerning systems and methods for controlling output power in a communications device, Forrester teaches a processor readable medium containing processor executable instructions (figure 3, item 320).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Miller’s instructions with Forrester’s processor in order to execute the method with up-to-date technology.

Regarding claims 9 and 29, Miller in view of Forrester teaches all the limitations of claims 8 and 28, respectively. Miller further teaches of detecting a transmitted power signal and a reflected power signal (column 1, lines 63-66; e.g., “senses” corresponding to “detecting”); and calculating the load mismatch criterion as a function of the transmitted and reflected power signals (column 1, lines 55-59; where the “ratio” provides the “load mismatch”).

Regarding claim 10, Miller in view of Forrester teaches all the limitations of claim 8. Miller further teaches of configuring a gain of the power amplifier (column 3, lines 12-18; where an amplified voltage represents a gain).

Regarding claim 11, Miller teaches of receiving at least one of a transmitted power signal level and a reflected power signal level from a power amplifier associated with a wireless transmitter (column 2, lines 1-3); and configuring a gain of the power amplifier as a function of the transmitted and reflected power signal levels (column 2, lines 12-18; where the gain is configured by making the comparison between the signals). Forrester teaches of a processor readable medium containing processor executable instructions (figure 3, item 320).

Regarding claim 12, Miller teaches of a wireless communication device comprising: a wireless transmitter (column 1, lines 10-13); a power amplifier to output a signal from the wireless transmitter (figure 1, item 9) to configure the power amplifier as a function of a load mismatch criterion determined from the signal (column 1, lines 50-54). Forrester teaches of a controller (column 7, lines 4-8).

Regarding claim 13, Miller in view of Forrester teaches all the limitations of claim 12. Miller further teaches where the controller configures a gain of the power amplifier as a function of the load mismatch criterion (column 3 lines 62-66).

Regarding claims 14 and 21, Miller in view of Forrester teaches all the limitations of claims 12 and 19, respectively. Miller further teaches where the controller is configured to calculate the load mismatch criterion as a function of a transmitted power signal level and a reflected power signal level determined from

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the signal (column 2, lines 12-18; where the gain is configured by making the comparison between the signals).

Regarding claims 15 and 22, Miller in view of Forrester teaches all the limitations of claim 12 and 19, respectively. Forrester further teaches of a dual-directional coupler to separate the signal into a transmitted power signal component and a reflected power signal component (figure 3, item 316).

Regarding claims 16 and 23, Miller in view of Forrester teaches all the limitations of claims 15 and 22, respectively. Miller further teaches of a first power detector coupled to receive the transmitted power signal component and configured to generate a transmitted power signal level; and a second power detector coupled to receive the reflected power signal component and configured to generate a reflected power signal level (figure e1, item 11; where the circuitry can have one or more detectors).

Regarding claims 17 and 24, Miller in view of Forrester teaches all the limitations of claim 16 and 23. Forrester further teaches where at least one of the first and second power detectors comprises a broadband power detector (column 1, line 50; where CDMA supports broadband communications, therefore, will require a broadband detector).

Regarding claims 18 and 25, Miller in view of Forrester teaches all the limitations of claims 16 and 23, respectively. Miller further teaches where the controller is configured to receive the transmitted and reflected power signal levels (column 6, lines 16-21).

Regarding claim 19, Forrester teaches of an integrated circuit (column 7, lines 6-10; where IC circuits can be configured as desired). Miller further teaches of a power amplifier to output a signal from a wireless transmitter and a controller to configure the power amplifier as a function of a load mismatch criterion determined from the signal (column 1, lines 55-59; where the "ratio" provides the "load mismatch").

Regarding claim 20, Miller in view of Forrester teaches all the limitations of claim 19. Miller further teaches where the controller configures a gain of the power amplifier as a function of the transmitted and reflected power signal levels (column 2, lines 12-18; where the gain is configured by making the comparison between the signals).

Regarding claim 26, Forrester teaches of an apparatus (figure 1) comprising: a power amplifier (figure 1, item 120); Forrester further teaches of a dual-directional coupler to separate the signal into a transmitted power signal component and a reflected power signal component (figure 3, item 316); Miller teaches of a first power detector coupled to receive the transmitted power signal component and configured to generate a transmitted power signal level; and a second power detector coupled to receive the reflected power signal component and configured to generate a reflected power signal level (figure e1, item 11; where the circuitry can have one or more detectors).

Regarding claim 27, Forrester teaches of an apparatus (figure 1) comprising: a power amplifier (figure 1, item 120); a directional coupler to extract a reflected power signal component from a power signal (figure 3, item 316); a

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reverse power detector to generate a reflected power signal level (column 7, lines 59-61; where the coupler performs the function); and Miller teaches of a control arrangement to configure the power amplifier as a function of the reflected power signal level (column 1, lines 50-54).

Regarding claim 28, Miller teaches of an apparatus (figure 1) comprising: a wireless transmitter wireless transmitter (column 1, lines 10-13); a power amplifier to output a signal from the wireless transmitter (figure 1, item 9); and a controller configured to evaluate a load mismatch criterion relative to the wireless transmitter (column 2, lines 12-18; where the gain is configured by making the comparison between the signals), and configure the power amplifier as a function of the load mismatch criterion (column 1, lines 50-54). Forrester further teaches of a controller (column 7, lines 4-8).

Regarding claim 29, Miller and Forrester teach all the limitations of claim 28. Forrester teaches of a controller (column 7, lines 4-8). Miller further teaches where the controller is further configured to: detect a transmitted power signal and a reflected power signal; (column 1, lines 63-66; e.g., "senses" corresponding to "detecting"); and calculate the load mismatch criterion as a function of the transmitted and reflected power signals (column 1, lines 55-59; where the "ratio" provides the "load mismatch").

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. ***.

5. US Patent No.: 5,564,086 A, refers to a method and apparatus for enhancing radio transmitter.


US Patent No.: 5,423,082 A , refers to a method for a transmitter to compensate for varying loading without an isolator.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Angelica Perez whose telephone number is 703-305-8724. The examiner can normally be reached on 7:15 a.m. - 3:55 p.m., Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600's customer service number is 703-306-0377.


Angelica Perez
(Examiner)

June 10, 2004


NAY MAUNG
SUPERVISORY PATENT EXAMINER

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